35 U.S.C. §103(a) as being unpatentable over Appelt in view of Lee in further view of Distefano (US 6,309,915 B1). Claims 13-19, 29-30 and 42 are rejected under 35 U.S.C. §103(a) as being unpatentable over Appelt in view of Lee in further view of Sheppard (US 6,284,569 B1).

Applicants respectfully assert that the references, taken alone or in combination, fail to teach or suggest each and every feature of the claimed invention as required under §§102(b) and 103(a). Additionally, Applicants assert that the Office has failed to establish a *prima facie* case of obviousness in support of the §103(a) rejections.

For example, Applet fails to teach or suggest, *inter alia*, a connector "wherein the coefficient of thermal expansion of the connector is approximately **midway between** the first and second coefficient of thermal expansion," as recited in claim 1. Applet also fails to teach or suggest, *inter alia*, a "connector having a coefficient of thermal expansion between the first and second coefficient of thermal expansion," as recited in claim 37. The Office alleges that col. 4 of Appelt contains the recitation of coefficient of thermal expansion (CTE) values relating to Fig. 6. Applicants assert that the Office is in error in this assumption. There are no CTE values specified in the discussion of Fig. 6, (see, col. 5, ln. 57- col. 6, ln. 9). In fact, we have no indication that there are any CTE requirements with regard to Fig. 6. Applicants assert that the elements of Fig. 2 and Fig. 6 do not correspond as the Office is trying to argue. For example, numeral 210 is the reinforcement in Fig. 2, whereas the reinforcement of Fig. 6 is numeral 640. If these figures were intended to be interchangeable, as the Office is trying to assert, the reinforcement of Fig. 6 would have been labeled numeral 610, not 640.

Even if the CTE requirements set forth in col. 4 were intended to pertain to Fig. 6, Applicants assert that Appelt still fails to teach or suggest a connector having a CTE **midway**

between the first and second coefficient of thermal expansion, as required in the present invention. In contrast, Appelt teaches a chip carrier 610 having a reinforcement 640 mounted between a chip 630 and a circuit board 620. The CTE of the chip is 2 ppm/C, the CTE of the circuit board is 15-25 ppm/C and the CTE of the reinforcement is 3 ppm/C. (See, col. 4, lns. 13-23). Clearly, the reinforcement is intended to have a "CTE close to that of the chip," (see, col. 4, lns. 15-23), not a CTE midway between the chip and the circuit board.

The Office goes on to state on page 11 of the Final Office Action that Appelt teaches the chip carrier and reinforcement having a CTE of 7 ppm/C, (col. 6, ln. 32-36), that is allegedly between the CTE of the chip and the circuit board. The Office is, however, mistaken in the reading of this passage of text. Appelt clearly states, the CTE of the reinforcement in the core region "can be tailored to match that of a ceramic, such as Al_2O_3 (of about 7 ppm/C), typically used as a substrate." (See, col. 6, lns. 32-36, emphasis added). The requirement set forth in col. 4 of Appelt, that the CTE of the reinforcement of the chip carrier by equal to the CTE of the chip, is echoed in this passage of text as well. The CTE of the chip carrier and reinforcement is not **midway between** the CTE of the chip and circuit board, but instead is equal to the CTE of the chip, in this case a ceramic chip. Applicants assert that none of the secondary references cited by the Office remedy this deficiency.

In addition, Applet fails to teach or suggest, *inter alia*, a connector having "a plurality of contacts on a first and a second surface of the connector, wherein all of the contacts on the first and second surfaces alternate with respect to each other," as recited in claim 1. Likewise, the cited references fail to teach or suggest, *inter alia*, "at least three contacts on a first surface of a substrate; at least three contacts on a second surface of the substrate, wherein the contacts on the

first surface of the substrate are alternatingly off-set from the contacts on the second surface of the substrate," as required by claim 20. The cited references also fail to teach or suggest, *inter alia*, "a plurality of alternating contacts on a first surface and a second surface of the flexible connector, wherein at least three contacts in succession on the first surface alternate with at least three contacts in succession on the second surface," as recited in claim 31. The cited references likewise fail to teach or suggest, *inter alia*, "at least three alternating contacts on a first surface and at least three alternating contacts on a second surface of the connector," as recited in claim 37. Additionally, the cited references fail to teach or suggest, *inter alia*, "at least three contacts located at a far distance to a neutral point (DNP) on a first surface and at least three contacts located at a far distance to a neutral point (DNP) on a second surface of the substrate, wherein the contacts are off-set," as required by claim 43.

As clearly illustrated, in Fig. 6 of Appelt, the contacts 631-634 on a first surface of the chip carrier 610 do not alternate with respect to, nor are they off-set from, the contacts 612-613 on a second surface of the chip carrier. Applicants further assert that the Office's combination of Appelt and Lee fails to remedy this deficiency. Lee's design, utilizing a segmented interposer 118 having alternating solder balls 12 and 16, encourages movement of the various decoupled segments of the interposer 118, (see, col. 5, lns. 32-36; lns. 43-45). This is in direct opposition to Appelt, which is designed to prevent movement of the chip carrier 610 in the region of the chip 630. Accordingly, there would be no motivation to utilize the off-set contacts of Lee, which are intended to encourage movement of the interposer 118, with the chip carrier 610 having reinforcement 640 of Appelt, which is intended to prevent movement.

The cited references also fail to teach or suggest, *inter alia*, a method including the steps of "providing a flexible connector having .... a plurality of alternating contacts on a first surface and a second surface of the flexible connector, wherein at least three contacts in succession on the first surface alternate with at least three contacts in succession on the second surface; and attaching the flexible connector between a first substrate and a second substrate via the contacts," as recited in claim 31. Likewise, the cited references also fail to teach or suggest, *inter alia*, a method including the steps of "providing a flexible connector having ... at least three alternating contacts on a first surface and at least three alternating contacts on a second surface of the connector; and attaching the contacts on the first surface of the connector to the first substrate and the contacts on the second surface of the connector to the second substrate," as recited in claim 37. Similarly, the cited references fail to teach or suggest, *inter alia*, a method including the steps of "providing a flexible connector having a plurality of alternating contacts on a first surface and a second surface of the flexible connector...and attaching the flexible connector between a first substrate and a second substrate via the contacts," as recited in claim 42.

The Office never asserts that Appelt or the secondary references teach the method steps set forth in claims 31, 37 and 42. In fact, the Office treats these claims as structure claims. There is no teaching in the cited references of a method including the formation of a connector having alternating contacts on a first and second surface of the connector, followed by the step of attaching the connector between a first and second substrate, as required in the present invention. Appelt and Lee teach finished structures, not a method of forming the structures, so we have no indication of the manner in which the structures of Appelt or Lee are formed. Furthermore, there is no indication in any of the cited references that a connector exists at any point in time having a plurality of alternating

contacts on a first and second surface, wherein at least three contacts in succession on the first surface alternate with at least three contacts in succession on the second surface, as occurs during the method steps set forth in the present invention.

Applicants respectfully request withdrawal of all rejections and submit that the entire application is in condition for allowance. However, should the Examiner believe anything further is necessary in order to place the application in better condition for allowance, or if the Examiner believes that a telephone interview would be advantageous to resolve the issues presented, the Examiner is invited to contact the Applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,

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Date: 02/18/2003

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